

# 50. Internationales Wissenschaftliches Kolloquium

September, 19-23, 2005

**Maschinenbau  
von Makro bis Nano /  
Mechanical Engineering  
from Macro to Nano**

**Proceedings**

Fakultät für Maschinenbau /  
Faculty of Mechanical Engineering

Startseite / Index:

<http://www.db-thueringen.de/servlets/DocumentServlet?id=15745>

## Impressum

- Herausgeber: Der Rektor der Technischen Universität Ilmenau  
Univ.-Prof. Dr. rer. nat. habil. Peter Scharff
- Redaktion: Referat Marketing und Studentische Angelegenheiten  
Andrea Schneider
- Fakultät für Maschinenbau  
Univ.-Prof. Dr.-Ing. habil. Peter Kurtz,  
Univ.-Prof. Dipl.-Ing. Dr. med. (habil.) Hartmut Witte,  
Univ.-Prof. Dr.-Ing. habil. Gerhard Linß,  
Dr.-Ing. Beate Schlütter, Dipl.-Biol. Danja Voges,  
Dipl.-Ing. Jörg Mämpel, Dipl.-Ing. Susanne Töpfer,  
Dipl.-Ing. Silke Stauche
- Redaktionsschluss: 31. August 2005  
(CD-Rom-Ausgabe)
- Technische Realisierung: Institut für Medientechnik an der TU Ilmenau  
(CD-Rom-Ausgabe) Dipl.-Ing. Christian Weigel  
Dipl.-Ing. Helge Drumm  
Dipl.-Ing. Marco Albrecht
- Technische Realisierung: Universitätsbibliothek Ilmenau  
(Online-Ausgabe) [ilmedia](#)  
Postfach 10 05 65  
98684 Ilmenau
- Verlag:  Verlag ISLE, Betriebsstätte des ISLE e.V.  
Werner-von-Siemens-Str. 16  
98693 Ilmenau

© Technische Universität Ilmenau (Thür.) 2005

Diese Publikationen und alle in ihr enthaltenen Beiträge und Abbildungen sind urheberrechtlich geschützt.

ISBN (Druckausgabe): 3-932633-98-9 (978-3-932633-98-0)  
ISBN (CD-Rom-Ausgabe): 3-932633-99-7 (978-3-932633-99-7)

Startseite / Index:  
<http://www.db-thueringen.de/servlets/DocumentServlet?id=15745>

G. Tzvetkov / K. Anguelov

## **Possibility for Improving the Competitive Power of the Industrial Companies in Bulgaria through Implementation of Re-engineering of Business Processes**

### **ABSTRACT**

Business process re-engineering (BPR) is a successful tool which helps firms to focus on vision alignment and improve their competitive advantages. The increasing competitiveness of Bulgarian industry is one of the strategic missions for the country in the pre-accession process to European Union. In this paper is made a short analysis of the main factors which would influence over the competitiveness of the Bulgarian enterprises. The importance of BPR implementation for improving competitiveness of the Bulgarian enterprises is founded.

### **NEW REQUIREMENTS FOR COMPETITIVENESS OF THE BULGARIAN ENTERPRISES**

Globalization of the world economic and the Bulgarian accession to EU form the new challenges in front of the enterprises in the country. One of the most important is the increasing their competitiveness in one highly uncertain competitive surroundings. With what exactly is described the market in condition of global (postindustrial) society?

1. Market globalization and the same time constant differentiation and segmentation of the group of clients. The competitiveness is practically no-regulative.

2. Fast rising client's requirements and for this reason – shorter product's life course.

3. Variety of the possibilities to connection and communication due to the new informational technology.

How these changes reflect over clients and competitive enterprises? The change in the clients' behavior for the market products and services can be generalized in the following groups:

1. Changes in clients' requirements towards quality of the products and services. The quality is a complex index, based on technical, ergonomic, aesthetic and image indicators, as well as the conditions for guarantee and the service after this period and also the assessment for delivery system. Although these indexes were well-known before, it is in postindustrial society which the market forces enterprises to improve their competitive advantages in each of these directions.

2. Personalization for products and services. The client, no matter if it is another enterprise or a particular consumer has a right to give personal preference to the product or services which is

different from the standard production. This product or service is made especially for this particular client, in order to supply his unique and tangible needs; is conformable to production's plan, delivery system and convenient conditions for the installment plan.

3. Clients have free access to huge number of informational sources for potential products and services. This information includes all aspects, which are available to catch the client's attention – price, quality characteristics, how far is profitable to pay for one qualitative characteristic, is there chipper analogous etc. Now more than ever each client could, without going out of his room in front of his personal computer, buy everything which is allowed by law. Something more – the client will buy this product, which really longs for, because he has already compared all available offers.

In order to be competitive and to keep its market share, industrial enterprises have to achieve not only improvement of quality and service, price decrease and save time, but they have to take care for continuous creation of new innovative products and services.

If you react fast to the changeable needs of your clients, if you include innovative products and extend in the new market areas (which in case of necessity have to leave as soon as possible) you will have chance to survive and resist under the pressure of the competition.

Innovative products, which are competitive not only in the national market positions, as well as the time minimization for their creation, production and participation on the market and sale, are central elements for the future security of organization. For the future success of the enterprise the determinant factor is how this enterprise will face up to the challenges and external conditions.

The continuous change is the only constant thing in the modern world. Company that decides to stop changing, without looking for new arguments for competitiveness of his products and services, soon will find out the impossibility of being active market leader.

As a result of this market conditions, the requirements towards one modern enterprise could be classify in the following groups:

#### 1. Requirements for the flexibility of an organization.

It is really necessary that modern enterprises do changes in organizational structure. The most important thing is the form for organization of the production process, which describes the nature of the product's production and less attention on the organizational structure. Precisely this form of organization is more and more developed and the aim of this change is to achieve new level of flexibility. On the centre of this examination is the particular process. On the place of the functions, which had more important role before, now comes the entire process. The new conception for industrial engineering and management is linked with changes in organizational structure in the enterprise in order to simplify the structure from vertical to flat.

## 2. Orientation towards clients and competition.

Each enterprise has to put on centre of his efforts and attention the client, in order to satisfy his individual requirements. The result of these efforts is the variety of a long production list, offered in the market. The Management of Quality has become more important, since the meaning of the quality is equal to accomplish client's wishes. From the other hand, media like Internet contribute to extra increasing requirements towards enterprises, because they create huge transparency in the market and conditions for comparing products and services.

## 3. Production cycle „Time to Market”.

The orientation towards client's wishes and more intensive, global competition, leads to continuous redesign of enterprise's range, to permanent production of a new product or improving already existed products. This shorter cycle product's life might be dangerous, because the investment for creation and development could not be completely restored or the price of the product should be too expensive. In order to reach such prices, which are profitable for enterprise, is very important to reduce the time from idea creation for the product or service to its market offering.

These changes in business organization are concerned to conception Business Intellectualism as well as connected with these new idea conceptions for industrial engineering and management.

# **FACTORS, INFLUENCED OVER INCREASING COMPETITIVENESS OF BULGARIAN ENTERPRISES IN NEW MARKET REALITY**

The Faculty of Economics of Technical University – Sofia has well-developed system for assessment and analysis the competitiveness of Bulgarian enterprises. This serious problem for our country is treated in many scientific researches, pornographies, papers. In [4,5,7,8] you could find actual data for the competitive state of Bulgarian enterprises. The main conclusions are:

1. Bulgaria is far behind regarding his competitiveness from European countries. Assessed by criteria of Lisbon, Bulgaria is on the last position among twelve new countries in the pre-accession process to European Union, including Rumania and Turkey.

2. The total assessment for the Bulgarian industry is only just 3,25. But yet our country has made some progress for the year 2004. According to data from World Economic Forum in 2004 Bulgaria is on the 59 position among 104 countries. This better position for Bulgaria is due to the improved macroeconomic indexes.

3. Bulgarian industry is behind the others countries as regards the index of business competitiveness (the 75 position). According to the quality of business environment our country has the 72 position, while on the level of company activity and company strategy – the 86 position. This is indicator that the cardinal efforts for increasing competitiveness our country must be directed to

dramatic improvement of internal company's conditions and particularly – to management of enterprises.

The Center for Economic Development draws a conclusion in one research concerning the competitiveness of Bulgarian economics that competitive advantages of Bulgarian enterprises are based on the lower expenditure for labor (78 %). The majority of enterprises (70%) form their economic process on the base of outdated technologies. In the same research only 5% of enterprises declared that their competitiveness is the result from their innovational potential.

Authors of the present paper from their observations of many years and scientific researches in the field of competitiveness of Bulgarian enterprises, last of which are [4,7,8], determine following factors influence over the loss of competitive advantages from Bulgarian enterprises:

1. Disrespect to global tendencies of development in design of new and improving products and services of Bulgarian enterprises. Lack of innovation on the process of product's design. This is also neglecting requirements which are posed by the new type well-informed and exigent client. Global directions of development are described in the previous item of the present paper.

2. Serious lack of right judgment to the possibilities, which are created by informational society. This includes using informational and communicational systems as well as e-commerce.

3. Bulgarian enterprises build their activities on the base of outdated as a conception business processes. This leads directly to ineffectiveness, lower productivity, many employees occupied in process, bad quality of the product, weakness in coordination, many hierarchical level troubling the making decision process etc.

4. Bad developed company culture. The majority of Bulgarian enterprises the human capital is not estimate highly. Respectively the management does not invest in his human resources, so the employees do not accept the enterprise as a part of their professional way.

5. Bad developed marketing. This predetermines the difficulties on front of direct access to the market from EU and other countries.

6. Antiquated technological base. In many cases technologies are not applicable and not equal to modern requirements for preservation environment, labor safety etc.

7. Difficult access to financial sources.

8. Outdated necessary equipments.

As a result – many Bulgarian enterprises are not competitive not only in EU level, but in your regions.

## **POSSIBILITIES TO INCREASING COMPETITIVENESS OF BULGARIAN ENTERPRISES THROUGH BUSINESS PROCESS REENGINEERING**

When we analyze factors, lead to lower competitiveness of Bulgarian enterprises, we can make comparison with the enterprises in USA in the beginning of 80-s years. In this period the enterprises had ineffective business processes [2] and as a result of this they did not produce products, corresponded to the market requirements [3]. Informational technologies are used not to reform business process, but to automation of exist activities [1]. Employees, occupied in execution of business processes are huge number and there is no good enough coordination between them [2]. As a result of this even in the American market Japanese products have penetrated. These products are made by enterprises in which some business processes are more effective than analogical one in the American enterprises. Many others analogies could be made between the USA industry of 80's and our present conditions in Bulgaria. There is one difference, of course, in the dimension of these two industries. The USA had a possibility to restructure American enterprises for a long period of time – almost decade. They had based this initiative on the large international market, as well as the international factors. Bulgaria, unfortunately, has no large internal market not a possibility to protect his products on the foreign markets. This leads to radical restructure of the business process in the Bulgarian enterprises.

Reengineering as an approach of management offers new, dramatic possibilities for:

- improving efficiency of business processes;
- reducing number of employees in execution of business processes;
- increasing the quality of production;
- increasing the innovation steps of the enterprises;
- improving coordination system between different sections of enterprise;
- reducing levels from hierarchical structure of management in the enterprise;
- creation of new type products and services, corresponded to the market reality .

We can also notice that the main factors, which are connected with negative influence over competitiveness of the Bulgarian enterprises, can be removed in their restructure through reengineering.

## **CONCLUSION**

Business process reengineering as a modern conception for industrial engineering and management, is a logical fulcrum and possible solution of the problem for rapid change in Bulgarian industry, in response to the new market requirements in global world. Thanks to his implementation of business practice of Bulgarian enterprises, they have a chance to remove one of the bigger disadvantages – lower efficiency, non-adequate towards market products, lack of innovation, not considering of

informational technologies, bad coordination system between different sections and many employees, occupied in one process. Business process reengineering is the way for Bulgarian enterprises to achieve the level of competitiveness, demanded by EU and also the market conditions.

**References:**

- [1] Hammer, M., Re-engineering Work: Don't Automate, Obliterate, Harvard Business Review, July-August 1990, pp.104-112.
- [2] Hammer, M. and J. Champy, Reengineering the Corporation: A Manifesto for Business Revolution, Harper Business, New York NY, 1993.
- [3] Hammer, M., Stanton S.A., The Reengineering Revolution, New York, Harper Collins, 1995.
- [4] Tzvetkov G. and L. Tchankova, Strategies for small and medium enterprises development in Bulgaria in the stage of transition, XI Betriebswirtschaftliche tage zu Schwerin 2002 "Wachstum und Sicherung Mittelständischer Unternehmungen unter veränderten Rahmenbedingungen", Schwerin, Germany, 2002
- [5] Velez, Mladen, Assessment and analysis of the company competitiveness, Softtrade, Sofia, 2004
- [6] Center of Economic Development, Annual report 2001
- [7] Studying over factors, determined competitiveness of the small and middle enterprises in the field of services, Contract with TU-Sofia-R&D Sector, N 306-15 NK/2003
- [8] Research the competitiveness of Bulgarian enterprises, Contract with TU-Sofia-R&D Sector, N 402-15 NK/2004

**Authors:**

Georgie Tzvetkov

Kiril Anguelov

Technical University of Sofia, Faculty of Management, Kliment Ohridski Bl. 8  
1000, Sofia

Phone: +359 2 9653531

E-mail: ang@tu-sofia.bg